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# Implementing Telemental Health to Improve Access to Mental Healthcare in Rural Vermont

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# IMPLEMENTING TELEMENTAL HEALTH TO IMPROVE ACCESS TO MENTAL HEALTHCARE IN RURAL VERMONT

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## Abstract

PURPOSE: This project aimed to implement a telemental health program in rural Vermont to: (a) increase the number of rural-dwelling patients who enter treatment for anxiety and depression, (b) evaluate the effectiveness of telemental health for depression, anxiety, and overall functioning, and (c) evaluate patient satisfaction with the accessibility, quality, and affordability of the service.

METHODS: Adult psychiatric diagnostic evaluation, medication management and psychotherapeutic interventions were delivered via telemental health. The service was marketed to Health Professional Shortage Areas (HPSA) in Vermont. Accessibility of patients residing in HSPA areas was compared between pre- and post-implementation. The Patient Health Questionnaire -9, Generalized Anxiety Disorder-7 and the Sheehan Disability Scale measured the efficacy of telehealth delivery. A patient survey assessed affordability, accessibility and quality. Descriptive statistics were utilized. IRB review was not required. Ethical and privacy protection were provided for telemental health patients using encryption.

RESULTS: Nineteen patients participated in the project. Four patients (21%) were from HPSAs. Aggregate measures for depression, anxiety and disability at 2$^{nd}$ follow up showed a decrease from baseline by 35.2%, 25.4%. and 45.1%, respectively. Patients reported satisfaction with accessibility, affordability, quality and overall experience with care.

CONCLUSIONS: Telemental health implementation in a small Vermont private practice setting resulted in improved access to mental health care for rural-dwelling adults and was clinically effective and satisfactory.


*Key words:* telehealth, health services accessibility, behavioral health, mental health services, rural health, rural populations

# Implementing Telemental Health to Improve Access to Mental Healthcare in Rural Vermont

## Introduction

### Problem Description

The prevalence of mental health problems impacts metropolitan and rural areas at roughly equal rates (Health Resources and Services Administration, 2005) with some studies citing higher estimates of substance use disorders (Eberhardt & Pamuk, 2004) and suicide in rural communities (Ivey-Stephenson et al., 2017); however, access to mental health care is significantly worse for those living in rural areas. Metropolitan counties in the U.S. reported lack of access to psychiatrists, psychologists and psychiatric nurse practitioners at rates of 27%, 19% and 42%, respectively in a 2018 report, but these rates were much greater in rural counties, at 65%, 47% and 81%, respectively (Andrilla et al., 2018). Vermont, a mostly rural state, has a high need for mental health services. In Windham County, Vermont, all age groups have a high level of need (Grace Cottage Hospital, 2012). The project coordinator (PC) surveyed providers in Windham County (see Appendix A) and found only two sites were accepting new patients without restrictions (Ronconi, 2019b). Of the two sites accepting new patients, one was 40 miles from the population center of Brattleboro and the other was reported as having a long wait list (Ronconi, 2019b). Finally, financial difficulties at the Brattleboro Retreat, the largest psychiatric facility in the state, have resulted in reduced outpatient service and inpatient beds, further limiting access to mental health services (Jickling, 2020; Smallheer, 2020).

Limited access to mental health services is due to several factors (see Appendix B). First and foremost, there is a shortage of psychiatric providers (Grace Cottage Hospital, 2012). There is only one psychiatry residency program in Vermont at the University of Vermont, and no

psychiatric mental health nurse practitioner programs. Providers tend to concentrate in urban areas, neglecting rural needs, which is consistent with the national trend (*Rural Mental Health Introduction - Rural Health Information Hub*, n.d.). Health care policy by its nature is slow to address this problem, as funding streams, training programs, and other policy measures require time to implement and do not meet immediate need for more providers in rural areas.

Traditional treatment delivery can add barriers to already limited options for mental health treatment. In rural areas, face-to-face visits with providers require long commutes and time away from work and other responsibilities (Williams & Holmes, 2018). Mental health care has been historically siloed away from other health care services. Insurance and cost constraints further impair access, as patients must find clinicians who accept their insurance or must pay out-of-pocket.

A final consideration is the possibility that Vermont residents have a higher-than-average need for outpatient mental health services due to poverty and substance use (see Available Knowledge section below). Poverty is a risk factor for depression, anxiety, psychological distress and suicide (Compton & Shim, 2015). Substance use disorders are highly co-morbid with other mental health disorders and increase vulnerability to psychological trauma, also associated with mental health diagnoses (National Institute on Drug Abuse, 2018).

## Available Knowledge

### *Mental healthcare need in Vermont*

Vermont has a poverty rate of 11.3%, slightly below the national average of 11.8% (U.S. Census Bureau, n.d.). Poverty is a risk factor for mental health disorders (Saraceno & Barbui, 1997). Substance use and the opioid epidemic are statewide problems in Vermont, leading to the declaration of crisis in 2014 (Seelye, 2014). Vermont ranks 12$^{th}$ in the nation for opiate overdose

deaths with a opiate death rate of 20 per 100,000 persons, compared to 14 per 100,000 persons nationally (National Institute on Drug Abuse, 2018). Suicide rate in Vermont is also higher with 18 suicides per 100,000 person, compared to 14 suicides per 100,000 persons nationally (Delany, 2018). Despite a high need, in 2015 42.3% of adults with any mental disorder went without mental health treatment or counseling in Vermont(Substance Abuse and Mental Health Services Administration, 2015).

Determining the exact unmet mental health need in Vermont is complicated by the mechanisms in which mental health need is assessed and reported. The Health Resources and Services Administration (HRSA) rates health provider shortage areas (HPSA) on a numeric scale from 0-25 with 25 being the highest need. HRSA differentiates psychiatrists from all other mental health providers. This means that psychiatric nurse practitioners, who function similarly to outpatient psychiatrists, are tallied with non-prescribing psychologists, social workers, substance abuse counselors and other mental health clinicians. Further, HRSA data do not differentiate between inpatient and outpatient providers. For example, in Southern Vermont, the Brattleboro Retreat is a large psychiatric hospital that also serves as part of the Vermont State Psychiatric Hospital and employs inpatient providers in the region. Windham County, where the Brattleboro Retreat is located, is not registered as a mental health care provider shortage area. Outpatient mental health care shortage is undifferentiated from inpatient care in HRSA data. Keeping these limitations in mind, the Rural Health Information (RHI) Hub identifies the following Vermont counties as mental health HPSAs: Caledonia, Essex, Grand Isle, Franklin, Orange, Orleans and Windsor Counties (HRSA, 2020).

Another method to appraise the availability of mental health clinicians by area is to examine the information in *Psychology Today*, a webpage with advertising for mental health

clinicians. At the time of the implementation, no HSPA-identified areas in Vermont had an advertising psychiatrist or psychiatric nurse practitioner on *Psychology Today*, while all had advertising therapists. In summary, mental health need in Vermont appears to be for clinicians with a prescriptive license the largest in the Northern areas of the state.

***Review of the literature***

The National Council for Behavioral Health (NCBH, 2017) issued a consensus statement recommending strategies to improve behavioral health service access. Their first recommendation, increasing the behavioral health workforce, includes policy and programming to increase the number of licensed clinicians to treat mental health disorders and, while important, reflects long-term solutions that are outside the scope of this project.

The second NCBH recommendation, improving workplace efficiency, offers more timely interventions. Suggestions include telepsychiatry, open access scheduling, adequate staff support to increase provider efficiency, improving capacity to share information, reducing excessive documentation requirements, measurement-based care and early intervention and prevention expanding innovative models of delivery of psychiatric care, as well as recommendations directed toward the primary care environment (NCBH, 2017). The third suggested area of improvement, use of emerging technologies, includes use of mobile and internet technologies to optimize care (NCBH, 2017).

A systematic review of the literature was conducted and focused on identifying evidence-based strategies for improving access to mental health services in rural areas (see Appendix C). The search yielded eight articles which examined this topic. Strategies and solutions for improving patient access to mental health services in rural areas are nascent. The most commonly studied approaches are telemental health (Egede et al., 2015; Hughes et al., 2019a;

Myers et al., 2015; Stewart et al., 2017) and primary care-mental health integration (Hansel et al., 2017), including primary care integration via telemental health (Myers et al., 2015). Other explored solutions include community-focused interventions that move health care services to non-clinical community settings (Allen et al., 2018; Gerlach et al., 2018), and provider-directed interventions which seek to better train non-mental health providers (LeCloux, 2018).

When comparing results to NCBH's consensus statement (2017), the current literature provides evidence for only one of NCBH's three categories of recommendations, improving workforce efficiency. Studies that examine emerging technologies, a promising area per NCBH, were either not conducted in the United States or did not meet criteria for high quality evidence. Of the interventions to improve access to mental health services, telemental health has the strongest evidence base, with high quality studies in a variety of treatment settings and with diverse populations (Egede et al., 2015; Hughes et al., 2019b; Myers et al., 2015; Stewart et al., 2017).

**Rationale**

The Institute of Health Care Improvement (IHI) (2019) identified a triple aim approach to healthcare: (a) improving the patient experience of care (including quality and satisfaction), (b) improving the health of populations, and (c) reducing the per capita cost of healthcare. This project embraced these aims with its interest in better serving behavioral health patients in Vermont and improving patient outcomes, while attempting to overcome access barriers in a rural setting. Telehealth also has the potential to address the third aim, reduced cost to patients through reduced time away from work, transportation costs, childcare costs, and other indirect healthcare expenses.

### Specific Aims

The purpose of this project was to answer the following question: For adult behavioral health outpatients in rural Vermont with depression and anxiety who lack access to mental health services, would the provision of psychiatric nursing services via telemental health (a) improve patient accessibility in underserved areas of Vermont, (b) decrease depressive and anxiety symptoms, compared to baseline assessment and (c) be evaluated as satisfactory by patients? (see Appendix D). Accompanying project aims are detail in Appendix E.

## Methods

### Context

This project took place in a private adult outpatient advanced practice nursing practice serving adults aged 19 or older, primarily with depressive or anxiety disorders in Brattleboro, Vermont (see Appendix F). The business is owned by a solo practice Psychiatric Mental Health Nurse Practitioner (PMHNP), the PC, who does all administrative work in addition to patient care delivery. The practice serves patients with behavioral health issues who reside in Southern Vermont, Southwestern New Hampshire and Western Massachusetts, the majority of whom seek treatment for psychiatric medication management. Referral sources are self-referral, usually in response to an advertisement in *Psychology Today* or word of mouth, and therapist referral. On occasion, primary care providers will refer.

Workflow through the clinic as part of usual care is typically as follows: a patient contacts the clinic, either through therapist or primary care referral or self-referral. They then have a prescreening phone call with the provider. If deemed appropriate for treatment and the patient's interest persists, the patient schedules an appointment. Patients with complex needs that exceed the capacity of clinic resources and patients in need of substance detoxification are

declined. If accepted, the patient's personal information is entered into the electronic medical record (EMR), *Office Ally*. As part of routine care at the new patient visit, the patient signs a consent for treatment, receives health privacy policy information and signs acknowledgement of receipt, and completes self-report diagnostic screening tools for anxiety, depression, bipolar disorder, alcohol misuse, and posttraumatic stress disorder.

A diagnostic face-to-face interview follows. The PMHNP documents the encounter in the EMR. At completion of the interview, the provider also documents patient problems and psychiatric diagnoses that have been identified and formulates a psychiatric treatment plan which includes pharmacology and/or therapy recommendations. The PMHNP commonly provides the patient with a prescription and, depending on treatment, laboratory orders for drug level monitoring or assessment of potential adverse side effects to take to an outpatient laboratory. Prescriptions for non-controlled substances are submitted electronically to the pharmacy. The PMHNP provides hard-copy lab orders and controlled substance prescriptions for patients to take to the lab or pharmacy, respectively. Finally, the PMHNP collects copays or fees and schedules a follow-up appointment. Any insurance or Medicare billing occurs after the patient visit, once documentation is complete. Patients with questions or concerns contact the clinic by phone or email. In some instances, patients will text message questions or requests to the provider. Collaboration with primary care providers or therapists occurs as needed and is ongoing.

Malpractice insurance through *Proliability* provides liability coverage for patient care related services (face-to-face, phone/email follow-up). Prior to implementation, patient record keeping, prescribing, and billing occurred electronically. All other aspects of the practice involved paper documentation. The PMHNP, who also served as the project coordinator (PC),

continued all of the processes listed above as part of routine care throughout implementation of the project.

***Supporting theory***

Lippitt's Change Theory informed the development and implementation of the project (Lippitt et al., 1958). Lippitt's model outlines seven phases for change, beginning with identification of the problem and ending with termination of the helping relationship (see Appendix G). This project integrated Lippitt's steps throughout its process (see Table 2).

The project followed Plan-Do-Study-Act (PDSA) cycles (see Appendix H) for continuous improvement as outlined by the Institute for Healthcare Improvement (2019). The PDSA cycle dovetails nicely with Lippitt's second through sixth phases of change (see Table 1); Lippitt viewed his phases as potentially non-sequential and/or occurring at the same time, similar to the PDSA revision process (Lippitt et al., 1958). Following these models, the project went through improvement cycles throughout the implementation process, addressing unforeseen difficulties as well as adopting changes to optimize improvement.

**Table 1**

***Supporting theory***

| Phase | Lippitt | PDSA | Project Integration |
|---|---|---|---|
| 1 | Diagnose the Problem | N/A | Available knowledge |
| 2 | Assess motivation and capacity for change | Plan | Review of the literature |
| 3 | Assess change agent's motivation and resources | Plan | Context |
| 4 | Select progressive change objective | Plan | Project Planning/Methods |
| 5 | Choose appropriate role of the change agent | Plan | Project planning/ Methods |
| 6 | Maintain change | Do-Study-Act (repeat PDSA as necessary) | Implementation |

| | | | |
|---|---|---|---|
| 7 | Terminate the helping relationship | N/A | Project completion |

### *Potential Barriers*

Technology was an identified potential barrier. While most Vermonters have portable electronic devices that can be used for telemental health, some do not. Additionally, cell service and internet capabilities can be poor in areas of Vermont, so much so that improvements have been the subject of public policy proposals (McCullum, 2018).

## Intervention

The PC proposed to deliver mental health service to adult outpatients with depression and anxiety via telemental health (see Appendix I). The PC adapted the existing usual care process to a comparable service via telemental health. The process involved four steps: regulatory compliance, marketing, creation of a digital office and implementation of the intervention, which are described in detail below.

### *Regulatory Compliance*

The Health Policy Institute (HPI) (2019) publishes a consolidated list of state regulation, Medicaid reimbursement and private payer laws. The PC reviewed Vermont state regulations on this list. In addition to HPI, the PC reviewed guidelines and clinical pearls for telemental health (American Psychiatric Association & American Telemedicine Association, 2018; Carlat, 2015).

At the time of implementation, telemental health was a legal and reimbursable means of providing care in the state of Vermont, so long as both patient and clinician were in the state of Vermont at time of service (Center for Connected Health Policy, 2019). If service crossed state lines, the law required that the clinician met the licensing requirements of both states. At the time of project planning the Ryan Haight Online Pharmacy Consumer Protection Act of 2008 set regulations for controlled substance prescriptions via telehealth (*DEA to Launch Registration*

*Process for Prescriptions by Telemedicine*, n.d.). An in-person, face-to-face evaluation was required for the initiation of Schedule II controlled substances.

Malpractice coverage was verified to cover telemental health. HIPPA compliant telehealth delivery systems were available at low cost. The PC deemed that the project was feasible from a licensing and regulatory perspective.

***Virtual Office***

Next, the PC developed a virtual office. The PC conducted an assessment of workflow to determine which in-person processes needed conversion to e-delivery. The PC completed the following steps: (a) selected a HIPPA compliant telehealth delivery system; (b) transitioned all administrative tasks to an online format including scheduling and billing; and (c) transitioned all patient materials including consents to online delivery. When possible, the PC integrated the conversion of the digital office with the electronic medical record. The PC selected *Doxy.Me* for telehealth delivery for its affordability, HIPPA compliance and ease of use (Doxy.Me, n.d.).

The PC adapted all consents to online delivery. The PC embedded consent delivery in the scheduling application, *AcuityScheduling*. Using this system, patients could not schedule an appointment without first completing consent forms. The PC also created a consent specific to telemental health (see Appendix J). Consent for treatment, HIPPA policies and HIPPA acknowledgement, and the telehealth consent were delivered via *AcuityScheduling*.

The PC developed a screening tool (see Appendix K) to help identify patients who were appropriate for mental health care via telemedicine, considering the following factors: access to the internet and necessary devices, comfort with technology, and the absence of cognitive impairments or other barriers to telehealth delivery of care. A likely diagnosis of anxiety and depression needed to be evident on a prescreening phone call, and the required patient age was

19 years or older. Patients needed access to the web browsers Firefox or Google Chrome and have a device or computer with a camera for video conferencing. Patients would not be seen via telemental health if they were currently taking or requesting the use of a controlled substance, needed case management, or had a history of unsafe behaviors toward themselves or others within the past 6 months.

### *Marketing*

Next, the PC developed a marketing strategy to inform patients and clinicians in underserved areas of Vermont about telemental health. The PC identified HSPA counties with no advertising psychiatric medication providers on *Psychology Today* and targeted those areas for marketing (Health Resources and Services Administration, 2017). The project initially targeted two of these counties, Orange and Orleans, for advertising and referral source outreach. With the collaboration of a web designer, the PC created a business webpage, juliaronconi.com. The webpage explained the practice, Julia Ronconi APRN, and telemental health. Links to *Acuity Scheduling* and to the Doxy.me virtual office were embedded in the webpage.

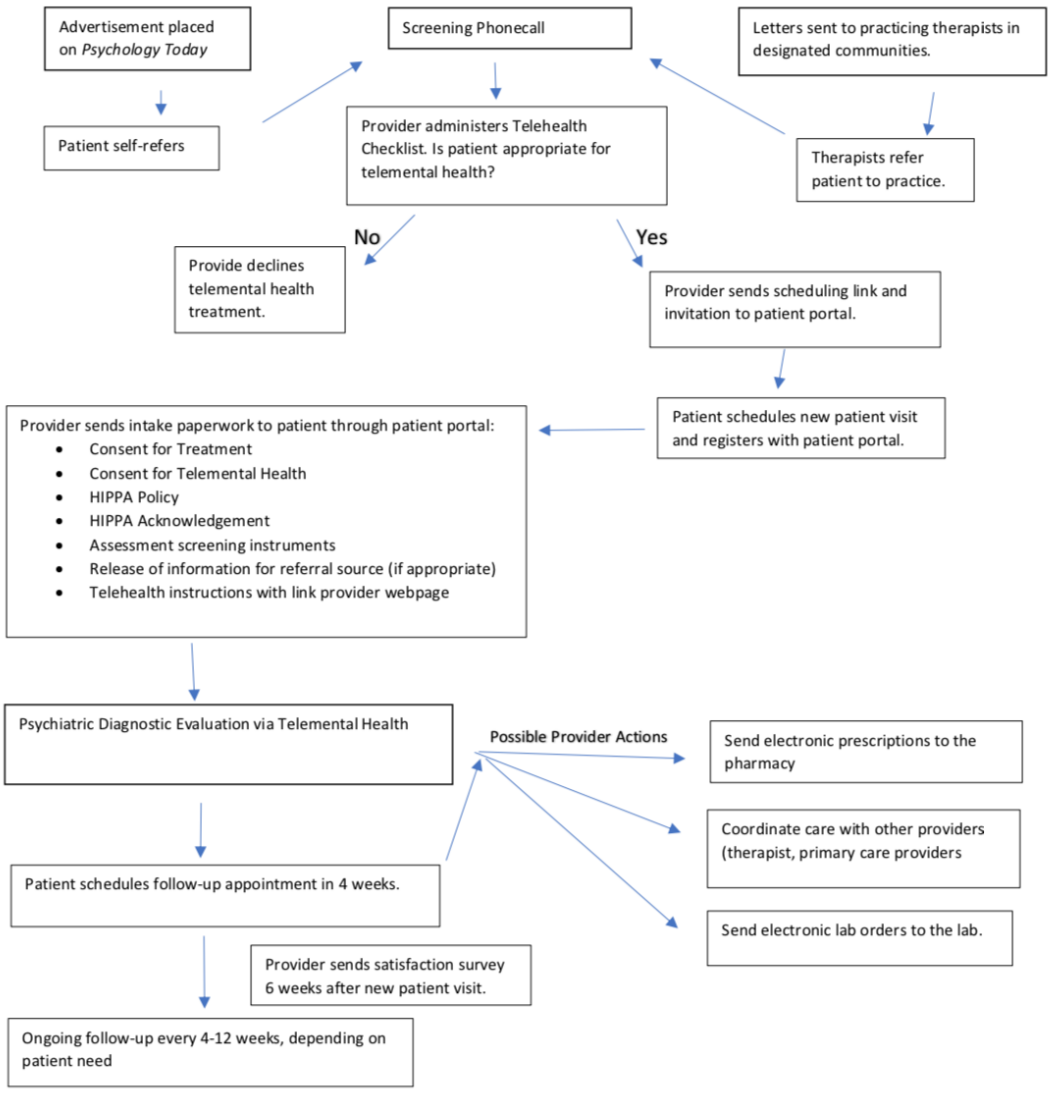
The PC directed marketing to both patients and clinicians. The PC wrote an advertisement for *Psychology Today*, directed to patients in underserved areas with anxiety and depression (see Appendix L.). The *Psychology Today* advertisement included a link to the business webpage. The PC then gathered addresses of publicly listed therapists in the selected regions and sent a letter via United States Postal Service announcing telemental health services, contact information, and a description of patients who would be appropriate for referral (see Appendix M). If this yielded fewer than two inquiries per week, the PC intended to market to more HPSAs and add outreach to primary care providers in underserved areas of Vermont, as part of the PDSA process.

### *Treatment Protocol*

Finally, the PC established a treatment protocol similar to usual care but adapted to a distance/telemental health format (see Figure 1).

**Figure 1**

***Treatment Protocol***




Patients either self-referred or were referred from their primary care provider, therapist or other community provider. The first patient contact was a screening telephone call using the telemental health checklist. The PC explained privacy considerations for telemental health and

the need to be physically present in Vermont in the consent process. If the referral was appropriate, the PC sent the patient a scheduling link.

The first patient appointment was a psychiatric diagnostic evaluation via telemental health. The provider (PC) was physically located in Brattleboro, Vermont and the patient was at a location of their choosing in their state of residence, using a personal computer or device of their choice. Use of a webcam was required if the device did not have a built-in camera. The interview format followed standard psychiatric format (Carlat, 2016). The PC administered screening measures for depression, anxiety, and disability, using the Patient Health Questionnaire-9 (PHQ9), the Generalized Anxiety Disorder-7 (GAD7), and the Sheehan Disability Scale (SDS) (see Appendix N). The PHQ9 and GAD7 were part of routine care; SDS administration was specific to this project. The PHQ9, GAD7 and SDS were used to guide the clinical treatment plan in relation to depression, anxiety, and quality of life.

At the end of the appointment, the PC made a preliminary psychiatric diagnosis and involved the patient in co-creating goals for symptom management/reduction and a treatment plan. Treatment options included pharmacologic management, psychoeducation and brief counselling, which focused on symptom management and stabilization. The PC ordered laboratory testing if results clarified the patient's diagnosis or established baseline measures such as metabolic screening prior to pharmacologic treatment. The PC sent prescriptions electronically to a pharmacy of the patient's choosing using the EMR. Each new patient appointment lasted 60 minutes in length. The PC requested that patients schedule a follow-up appointment in 4 weeks using *AcuityScheduling* and invited patients to contact the clinician via telephone or email if they had problematic side effects, worsening symptoms, or any questions about their care.

Follow-up appointments were 20-30 minutes in length and occurred 4 weeks after the first visit. Follow-up visits occurred via telemental health or telephone. The PC administered self-report scales (PHQ9, GAD7 and SDS), evaluated response to medication and symptom severity, noted changes to the patient's history and, if appropriate, adjusted the treatment plan, including making any necessary medication changes. The PC determined ongoing follow-up intervals on a case-by-case basis with a goal range between 4-8 weeks. Two weeks after the second appointment, the PC sent a satisfaction survey to patients via email (see Appendix O). The survey was anonymous and, to preserve anonymity, the PC did not track its completion. Survey results were analyzed at completion of the project.

### *Implementation*

Telemental health went live through placement of the advertisement on *Psychology Today* on May 1, 2020. The PC also mailed letters to advertising therapists in Orleans and Caledonia Counties at that time. The project was continuously appraised and revised following the PDSA model of continuous process improvement and changes were geared toward stabilizing implementation of telemental health (Lippitt et al., 1958). The project was implemented over the course of seven months with a goal of enrolling 20-25 patients. Patients completed an initial assessment and 2 follow-up visits with an enrollment period of approximately 8-12 weeks per patient. The PC collected data for aggregate data analyses throughout the project.

### *Project Team*

The project team included the PC. A site champion, a licensed clinical social worker who is also in private practice in Brattleboro, Vermont. The site champion has familiarity with the clinical practice and provided advice on the logistics of the project. The clinic microsystem

involved with the project included the primary care provider, therapists, pharmacy, laboratory, the electronic medical record and its customer support, and insurance and billing systems.

**Study of the Intervention /Measures**

Measures for the project included the following (see Appendix P):

1. Accessible care (Aim 1) was measured by estimating the proportion of patients enrolled in the telemental health project who reside in zip codes that had HRSA-identified unmet mental health need. The PC obtained information from patients' medical records and compared it to a 3-month period prior to implementation. The percent of addresses in Vermont counties with a predetermined unmet behavioral health need (see *Planning*) was compared to the pre-implementation caseload. This measure evaluated patient engagement from areas with unmet need in Vermont.
2. Effective care (Aim 2) was measured by monitoring improvement in the clinical depression and anxiety self-report scales, the PHQ9 and GAD7, and functioning SDS. A lower score indicated lower depression, anxiety or disability respectively. The PHQ9 and GAD7 also have indicators for low, moderate, and severe levels of illness based on response (See Appendix N). The patient measures were administered at baseline and at every subsequent visit to determine clinical progress. Patients had two follow-up data collection points, at 4 weeks and again at 8-12 weeks from their initial appointment.
3. Patient satisfaction (Aim 3) was measured by survey. The patient survey (Appendix O) assessed the areas of accessibility, quality, affordability, and satisfaction with telehealth and with care received. Accessibility measures measured patient ease with scheduling and attending appointments. Quality measures assessed overall experience with patient care and whether or not it met their expectations. Affordability measures included

attitudes about cost of treatment, as well as less indirect costs such as time away from work or family and travel expenses. The PC sent the survey via email two weeks after that patients' first follow-up visit. The PC chose this timeline to reduce recall bias.

**Analysis**

Analysis of the measures occurred as follows:

1. Aim 1: Pre-implementation (baseline) and-post implementation measures of frequency and percent of patients in the clinic caseload who reside in areas of unmet behavioral health need were calculated and compared. Increased patient enrollment from areas of unmet need, compared to pre-implementation, indicated successful achievement of this aim.
2. Aim 2: PHQ9, GAD7 and SDS scores were measured at baseline and at every subsequent patient visit. Percent change from baseline was calculated. Percent change aggregated as a mean was compared pre- and post-implementation. For consistency in measures among participants, the PC chose the second follow up visit scores (at 8-10 weeks) to compare to evaluate effectiveness. An improvement in scores obtained at follow-up compared to baseline indicated effectiveness of treatment.
3. Aim 3: Satisfaction scores derived from the patient survey using Likert scales were aggregated, and a mean score was calculated for access, affordability, and quality two weeks after the second follow-up visit.

**Ethical Considerations**

Ethical considerations for the use of telemental health were considered (see Appendix Q). This is a quality improvement project and utilized an evidence-based clinical intervention to improve practice outcomes. The PC reviewed University of Massachusetts Boston internal

review board (IRB) authorization requirements and assessed them as not required for the completion of the project. The proposed project does not meet the definition of human subjects research because it is not designed to generate generalizable findings but rather to provide immediate and continuous improvement feedback in the local setting in which the project was carried out. The University of Massachusetts Boston IRB determined that quality improvement projects do not need to be reviewed by the IRB.

Other ethical issues were considered. There are no contraindications for patients utilizing telemental health for their treatment (Shore et al., 2018). However, patients were seen in an unsupervised setting. The PC took measures to ensure patient safety. Considerations such as proximity to emergency services and available social supports were evaluated to mitigate potential risks (Shore et al., 2018). Privacy was also considered. A HIPPA compliant telemental health delivery system was utilized, and patients were educated about potential privacy risks and advised on measures to ensure their privacy such as avoiding public places or unsecure internet for their telemental health visits.

This intervention was only suited to patients with access to and comfort with technology. For this reason, the project excluded persons who were not technologically proficient or who lacked access to technology, potentially failing to meet standards for equitable delivery of healthcare.

## Results

### Evolution of methods

#### *COVID-19 Impacts*

Implementation started at the beginning of the global pandemic of coronavirus disease 2019 (COVID-19). In the early implementation phases, dramatic changes were made to rules and

regulations surrounding telehealth delivery of care (Center for Connected Health Policy, 2020). The United States Drug Enforcement Administration (DEA) updated controlled-substance prescribing guidelines effective March 31, 2020 (DEA Diversion Control Division, 2020). Most importantly, insurance reimbursement for telehealth became universal, including reimbursement from Medicare(HRSA, n.d.-a). State licensing boards also relaxed requirements, allowing for clinicians to seek emergency licensure and to practice according to their home state's regulations, to facilitate continuity of care (Mass.gov, 2020; Office of Professional Licensure and Certification, 2020). Regulatory changes increased project eligibility to New Hampshire and Massachusetts patients.

### *Therapist Outreach*

In the initial phases of the project, no patients were referred from therapist outreach. This marketing action was stopped.

### *Follow-up Timelines*

In addition to patients presenting with anxiety and depression symptoms (n=13), the project enrolled patients (n=6) who had histories of anxiety or depression, were stable on psychiatric medication and wishing to establish care. The project-established timelines for follow-up were not consistent with IHI aims of cost-effective care for these patients. For patients who sought treatment while psychiatrically stable, the first follow-up occurred at six weeks and second follow up was determined on an as-needed basis with a goal of less than two months between visits.

### *Added measure – patient distance from clinic*

As implementation progressed, it became apparent that the distance of patient residence to the clinic was increasing. The PC added "miles to clinic" as an access measure, calculated by

entering zip code of residence and mapping distance to 05301, zip code of provider, on *Google Maps*.

## Process Measures and Outcomes

### *Study population*

The study enrolled 19 patients (15 females, 3 males and 1 non-binary) with ages ranging from 21-69 (mean age 42.3, Median 38, mode 38). Six patients were seen for presenting problems related to anxiety and the remaining 13 patients had depression as their presenting problem. Primary care providers referred two patients; therapists referred four and 13 patients self-referred through advertising on *Psychology Today*. None of the therapists contacted through outreach referred patients to the practice. One therapist did contact the clinic, but her referral was not eligible for telehealth due to diagnostic complexity. Fourteen patients were Vermont residents, two were Massachusetts residents and three were New Hampshire residents. Five patients were on Medicare, the remaining were self-pay. Fourteen patients were employed full-time, four were retired and one was on long-term disability.

### *Study Aim 1*

Prior to implementation, no patients in the clinic were from counties identified shortage areas. Twenty-one percent of project patients (4/19) came from shortage areas, one patient each from Franklin, Orange, Orleans and Windsor Counties.

Pre-implementation, patients in the practice lived an average of 19.8 miles from the clinic. In contrast, during the implementation phase, enrolled patients lived an average of 66.1 miles from the clinic. The most frequent zip code of residence was 05301, Brattleboro, VT, in both pre-implementation and project populations, identified as “<10 miles” from clinic.

**Table 2**

***Distance from clinic***

| Distance from Clinic (miles)* | Mean | Median | Mode | Minimum | Maximum | % Change |
|---|---|---|---|---|---|---|
| **Pre-implementation** | 19.8 | 19.9 | <10 miles | <10 Miles | 51.8 | 233.7 |
| **Project population** | 66.1 | 42.1 | <10 miles | <10 Miles | 174 | |

* Determine by Patient Zip Code. Patients living in Brattleboro, Vermont (zip code 05301) were recorded as <10 miles from clinic.

***Study Aim 2***

The results of self-assessment screenings from 15 patients (78.9%) are listed in Table 3. Last observation carried forward was used for four patients who did not completed a second follow-up visit (Hamer & Simpson, 2009). Percent change demonstrated decreased scores on depression, anxiety and functional screening instruments (-35.2%, -35.3%, -45.1% respectively). At second follow-up visit, five patients (26.3%) had PHQ9 scores of 4 or lower, indicating minimal to full remission of depression, and six patients (31.6%) had GAD7 scores of 4 or lower, indicating minimal to full remission of anxiety. Four patients (21.1%) had SDS score of 0 at the 2nd follow-up visit, indicating no impairments in functioning.

**Table 3**

***Efficacy measure scores***

| Measure | Baseline | | | 1st Follow Up | | | 2nd Follow Up | | | %Change from baseline at 2nd Follow-up* |
|---|---|---|---|---|---|---|---|---|---|---|
| | Avg | Median | Mode | Avg | Median | Mode | Avg | Median | Mode | |
| **PHQ9** | 11.0 | 10 | 19 | 8.3 | 7 | 4 | 7.1 | 7 | 5 | -35.4 |
| **GAD7** | 9.8 | 9 | 17 | 6.5 | 5 | 4 | 6.4 | 5 | 5 | -35.3 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **SDS** | 18.8 | 21 | 26 | 13.5 | 12 | 4 | 10.3 | 10 | 0 | -45.1 |

***% Change = [(2nd follow up avg-baseline avg)/ baseline avg] * 100***

### *Study Aim 3*

Eight patients (42.1%) completed the satisfaction survey. Scores greater than 3 were evaluated as satisfactory care. Overall, these patients were satisfied with their care. Satisfaction survey results are shown in Table 4. Survey results were aggregated into categories, based on the question asked. Aggregate scores for access, affordability, quality and overall satisfaction are provided in Table 5.

**Table 4**

***Satisfaction Survey Results***

| Question # | Question Summary(N) | Measure | n | Average (median, mode) |
|---|---|---|---|---|
| **1** | Ease of schedule | Access | 8 | 5 (5,5) |
| **2** | Ease of telehealth technology | Access | 8 | 4.5 (5, 5) |
| **3** | Satisfaction with video quality | Quality | 8 | 4.3 (5,5) |
| **4** | Satisfaction with audio quality | Quality | 8 | 3.9 (4.5, 5) |
| **5** | Time away from work | Access | 5 | 3 (4, 4) |
| **6** | Reduction of childcare needs | Affordability | 2 | 3 (3, -[a]) |
| **7** | Reduction of travel expenses | Affordability | 8 | 4.6 9(5, 5) |
| **8** | Provide service unavailable locally | Access | 8 | 4.8 (5, 5) |
| **9** | Would recommend telemental health | Satisfaction | 8 | 4.5 (4.5,5) |
| **10** | Wait for appointment (weeks) | Access | 8 | 1 week (1, 1) |
| **11** | Satisfaction with wait | Access | 8 | 5 (5, 5) |
| **12** | Convenience of appointments | Access | 8 | 4.9 (5, 5) |

| | | | | |
|---|---|---|---|---|
| **13** | Clinician listened carefully | Quality | 8 | 5 (5, 5) |
| **14** | Clinician addressed concerns | Quality | 8 | 4.9 (5, 5) |
| **15** | Clinician provided understandable instructions | Quality | 8 | 4.9 (5, 5) |
| **16** | Respect for patient | Quality | 8 | 5 (5, 5) |
| **17** | Ease of communication between appointments | Access | 8 | 5 (5, 5) |
| **18** | Overall satisfaction with care | Satisfaction | 8 | 5 (5, 5) |

Note: 1 =lowest satisfaction and 5=highest satisfaction, unless otherwise noted
[a]2 respondents (5, 1). Mode not calculated

**Table 5**

***Aggregate Survey Results***

| Measure | Survey Questions | Aggregate Mean |
|---|---|---|
| **Access** | 1,2,5,8,11, 12,17 | 4.6 |
| **Affordability** | 6, 7 | 3.8 |
| **Quality** | 3,4, 13,14,15,16 | 4.7 |
| **Overall Satisfaction** | 9, 18 | 4.8 |

1=lowest satisfaction and 5=highest satisfaction

## Contextual Elements and Unexpected Consequences

This project was completed during the COVID-19 pandemic and prior to the 2020 U.S. presidential election. Both events had mental health implications that may have negatively impacted study outcomes (American Psychological Association, 2020; Pfefferbaum & North, 2020).

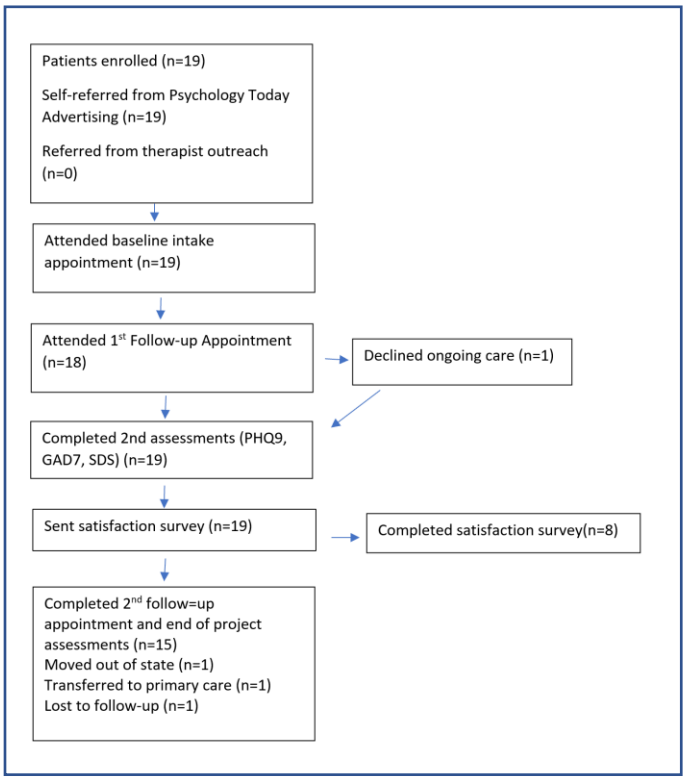
## Missing Data

Four patients did not complete the project: one patient moved out of state, one patient requested to transfer to primary care, one patient declined follow-up and one was lost to follow-up. Second follow-up data is not available for these patients.

Forty-two percent of project patients (n=8) completed the satisfaction survey. The remaining 57.9% did not provide information on their satisfaction with telemental health. (See Figure 2)

## Figure 2

***Participant flow through project***



# Discussion

## Summary

This project aimed to increase mental health services to patients with depression and anxiety in rural Vermont through the delivery of telemental health. The project realized positive results across study aims including an increase in patients-served from Vermont counties with HPSA designations, patient improvements in depression, anxiety and functioning, and satisfaction with care in domains of access, acceptability and quality. The project demonstrated that adaptation of telemental health in a small practice setting could yield positive results.

## Interpretation

The primary aim of the project was to increase access to mental health care in rural Vermont. All survey respondents reported that they received a service not otherwise available to them locally. However, only four patients came from shortage areas. The findings in this project suggest that HRSA does not accurately capture communities of need. It is unclear why this is the case. The formula for calculating HPSAs is complex and considers provider-to-population ratios, poverty rates, and distance to nearest source of care (HRSA, n.d.-b). It is possible that patient perception of access is more stringent than HRSA. Finally, rapid changes to healthcare delivery due to COVID-19 may also have impacted access to care (Moreno et al., 2020).

Patient satisfaction with telemental health was mostly high. The areas of least satisfaction were quality of the videoconferencing, specifically audio and video quality. Problems with audio and video quality could have been due to the videoconferencing platform or the quality of the internet connection. The PC used the same internet service provider and computer for all appointments and did not perceive audio or video difficulties. Therefore, difficulties with quality of videoconferencing were likely due to patients' internet capabilities. To overcome this problem, better patient education about type of internet connection and browser may be helpful.

It would also be useful to explore other barriers to quality internet such as financial limitations or issues with local telecommunications infrastructure.

The project was implemented during the COVID-19 pandemic which saw rapid implementation of telehealth technology across health care environments (Wosik et al., 2020). This context might have increased the acceptability of telemental health to patients, as patients perceived greater safety with fewer in-person contacts. Similar videoconferencing platforms such as Zoom became commonplace during the pandemic (Beauford, 2020). This familiarity may also have increased acceptability of telemental health.

In addition to the COVID-19 pandemic, the 2020 presidential election occurred toward the end of the project period, as patients were completing their 2nd follow-up visit. These events might have adversely impacted patient outcomes (Gerard, 2020), specifically as measured via the PHQ9, GAD7, and SDS. However, aggregate depression and anxiety scores decreased from moderate to mild range (per their respective measures, the PHQ9 and GAD7) and there was a 45% improvement in functioning per the SDS, indicating meaningful impact on quality of life and productivity. These gains are notable. Without significant societal events, greater benefits could have been realized.

### *Comparison to the literature*

To date, most research on telemental health and rural access has focused on efficacy and patient improvement as primary outcomes (Drago et al., 2016). Other studies have examined satisfaction with telehealth (Kruse et al., 2017). In this regard, this project is consistent with other work, finding that telemental health provides effective care, although videoconferencing technology can be a potential barrier for some people. Nonetheless, overall patients enrolled in the project were satisfied with their care. In the project literature review, no studies included

access to care as an outcome measure, despite the frequency with which telemental health is discussed as a solution to mental health access problems. Therefore, it is not possible to compare access measure results with other studies.

### *Impacts*

Impacts of the project fell mostly on patients. Telemental health required that patients be open to what could feel like a less personal interaction with their provider, that they be competent with a web-based videoconferencing platform, and that they have access to quality internet. The PC was the sole employee of the practice site and had full buy-in for the project. While the project impacted the PC's usual mode of patient care, this was not perceived as problematic. If this were a larger clinic, clinicians and staff may demonstrate resistance to a new technology or perceive telemental health as burdensome (Wade et al., 2016). For other people and systems within the clinic microsystem (collaborating therapists and primary care providers, pharmacy, lab and billing), changes to patient care were not discernable.

The project did not enroll persons with substance use disorders. In the context of COVID-19, this population is at increased risk for adverse outcomes and decreased access to care and telehealth is now recommended for this population (Oesterle et al., 2020). Telehealth guidelines for the treatment of persons with substance use disorders also changed with the COVID-19 pandemic (Oesterle et al., 2020). Treatment for substance use disorders was beyond the scope of this project and should be evaluated in future work.

### *Costs*

Feasibility of the project is impacted by cost and costs are listed in Table 6. Most administrative costs were already established clinic expenses. Advertising and the scheduling application were the only costs beyond usual clinic expenses. A cost of $9.6 per patient visit was

calculated for the project. Telemental health appointments were billed and reimbursed by insurance at the same rate as in-person visits so no greater revenue was realized with project patients. For practices with higher patient volume, costs per patient would be much smaller. If telemental health delivery resulted in increased patient volume, overall benefits could outweigh costs. Overall, costs of the project support feasibility of telemental health.

**Table 6**

***Project costs in US Dollars***

| | **Existing Clinic Expense** | **Additional Clinic Expense** | **Number of Months** | **Project Cost** |
|---|---|---|---|---|
| EMR | Yes | N/A | N/A | 0 |
| *Psychology Today* Advertising | No | 30.0/month | 5 | 150.0 |
| *Acuity Scheduling* | No | 50.0/month | 8 | 400.0 |
| *Doxy.me* | No | $0/month | N/A | 0 |
| Internet, office rental, insurance, miscellaneous office expenses | Yes | N/A | N/A | 0 |
| **Total Project Cost (US Dollars)** | | | | 550.0 |
| **Cost per Project Patient (N=19)** | | | | 28.9 |
| **Cost Per Patient Visit (3 visits)** | | | | 9.6 |

## Limitations

The project had a low satisfaction response rate, representing less than half of the patients. With less than half of participants responding to the survey, it is difficult to know if satisfaction scores are representative of the project population. The PC served as the PMHNP and was blinded to responses. If the PC served in a separate capacity, reminder messages may have improved response rates. Finally, allegiance to the PC might have been a factor in both

completing the survey and have swayed its positive results (Berg, 2005). Greater efforts to improve survey response rates would be beneficial and should be explored in future iterations of project design.

Another limitation of the project is its potential to exclude patient participation due to technological access and individual ability. The digital divide is believed to have increased impacts during COVID-19, potentially disenfranchising patients who might have benefitted from care (Ramsetty & Adams, 2020). Evaluation of this confounding factor is beyond the scope of this project.

Factors such as HPSA designation and distance to clinic were not susceptible to bias. Measures such as the PHQ9 and GAD7 should not be subjected to bias but it is important to note that scales were administered by the PC. Social desirability often affects patient responses to health questionnaires, based on their perceived acceptability to the clinician (Hoyt, 2000).

Finally, the PC chose the SDS for the disability measure in this project due to familiarity with the measure. However, the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (2013) recommends the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) as a standardized disability measure. WHODAS 2.0 is the preferred disability measure and should be utilized in future iterations of this project (Federici et al., 2017).

**Conclusions**

This project aimed to improve access to mental health care in rural Vermont through the use of telemental health. The project improved mental health care access to patients living in HPSA designated counties and included patients from greater distances to the clinic. Patients affirmed that, regardless of HPSA designation, telehealth increased their access to mental health care by providing a service not otherwise available in their community.

Patients in the project realized improvement in their depression, anxiety and functional assessments. Satisfaction with telehealth was high among those who completed satisfaction surveys. Factors related to technology, including video and audio quality, were ranked as satisfactory but had the lowest satisfaction level in the study. Given that the project was implemented during the COVID-19 pandemic and the 2020 presidential election, with their potential adverse mental health impacts, the findings are noteworthy.

The project is sustainable and introduced a method for care delivery that will extend beyond the confines of the project period. Costs are incurred by the provider but are assessed by the practice to not outweigh benefits.

The potential to spread this work to other settings is significant. The current practice is small ($n < 50$) and has limited insurance paneling. A larger practice or organization, particularly a practice that is paneled with a wider range of insurers, could realize greater benefits in patient outreach. It would be useful to measure accessibility in these settings. Replicating this project with a randomized controlled research design would provide more validity to the findings.

## Other Information

This project was an unfunded quality improvement project for the Doctor of Nursing Practice program at The University of Massachusetts Boston (UMB). UMB provided academic support and advisement for the project. Lisa Kelly, LICSW provided local support and advisement and served as the site champion. There were no other sponsors for this work.

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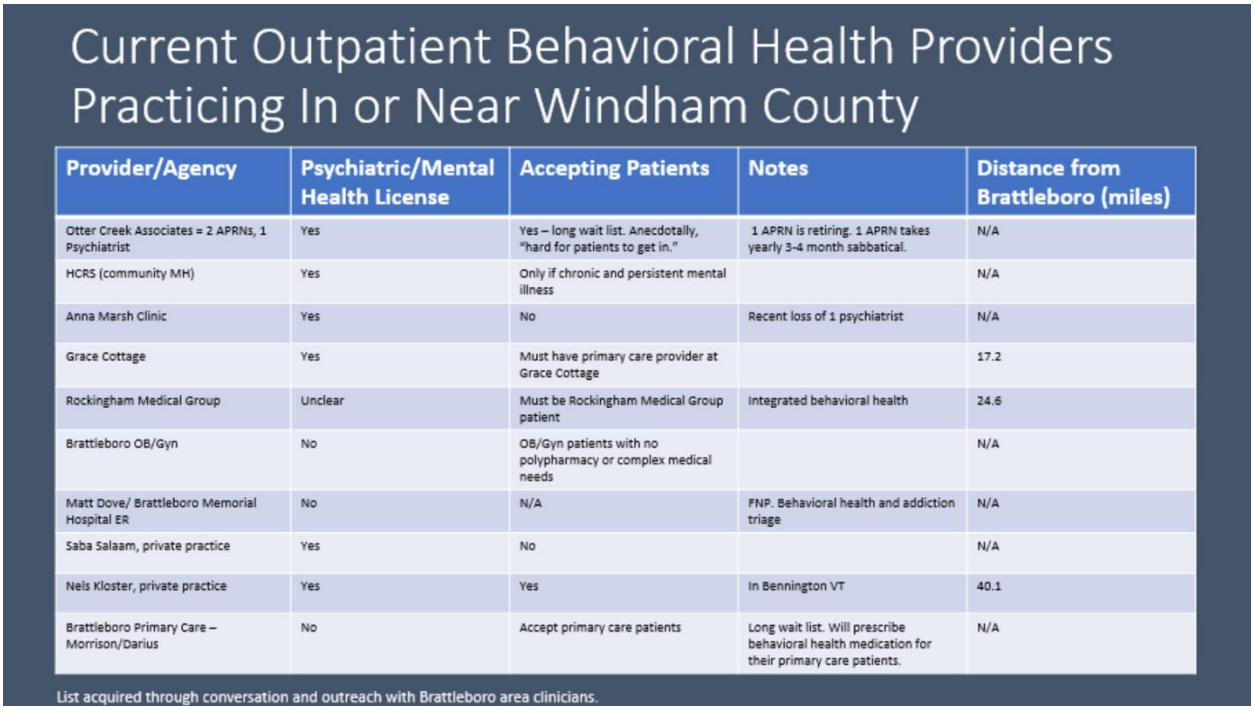
# Appendix A

*Outpatient Behavioral Health Providers in Windham County, Vermont*



## Current Outpatient Behavioral Health Providers Practicing In or Near Windham County

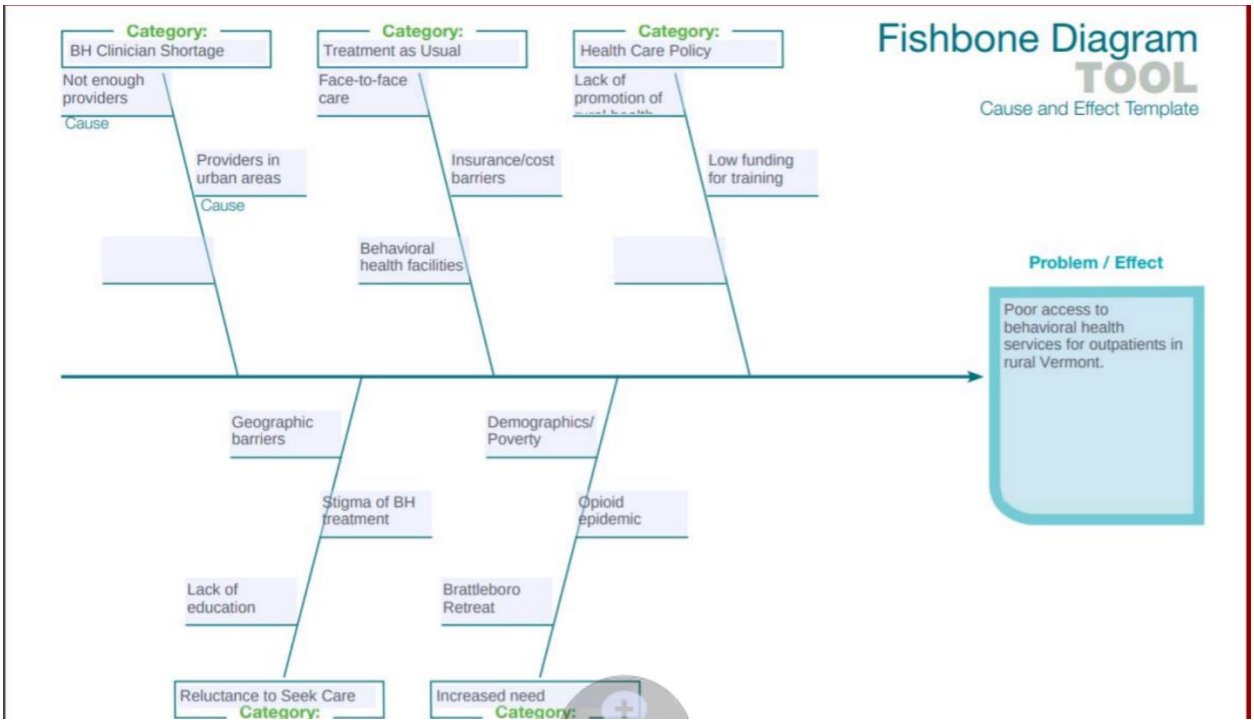
| Provider/Agency | Psychiatric/Mental Health License | Accepting Patients | Notes | Distance from Brattleboro (miles) |
|---|---|---|---|---|
| Otter Creek Associates = 2 APRNs, 1 Psychiatrist | Yes | Yes – long wait list. Anecdotally, "hard for patients to get in." | 1 APRN is retiring. 1 APRN takes yearly 3-4 month sabbatical. | N/A |
| HCRS (community MH) | Yes | Only if chronic and persistent mental illness | | N/A |
| Anna Marsh Clinic | Yes | No | Recent loss of 1 psychiatrist | N/A |
| Grace Cottage | Yes | Must have primary care provider at Grace Cottage | | 17.2 |
| Rockingham Medical Group | Unclear | Must be Rockingham Medical Group patient | Integrated behavioral health | 24.6 |
| Brattleboro OB/Gyn | No | OB/Gyn patients with no polypharmacy or complex medical needs | | N/A |
| Matt Dove/ Brattleboro Memorial Hospital ER | No | N/A | FNP. Behavioral health and addiction triage | N/A |
| Saba Salaam, private practice | Yes | No | | N/A |
| Nels Kloster, private practice | Yes | Yes | In Bennington VT | 40.1 |
| Brattleboro Primary Care – Morrison/Darius | No | Accept primary care patients | Long wait list. Will prescribe behavioral health medication for their primary care patients. | N/A |

List acquired through conversation and outreach with Brattleboro area clinicians.

(Ronconi, 2019)

# Appendix B

*Fishbone Diagram*




(Ronconi, 2019a)

# Appendix C

*State of Science Literature Review Summary Table*

| Intervention | Study | Study Population | Key findings | | |
|---|---|---|---|---|---|
| | | | Patient Access Measures | Patient Satisfaction | Efficacy |
| Telemental health | Egede et al., 2015 | Veterans | Not Studied | Not Studied | Telemedicine is non-inferior to in-room in the delivery of behavioral activation therapy for depression. |
| | Hughes et al., 2019 | Pediatric trauma survivors covered by Missouri Medicaid | Timeliness of care improved for integrated care group. | Not studied | Number of ED visits, medication adherence and hospital readmissions was similar in study group, compared to control |
| | Myers et al., 2015* | Children with ADHD in Washington and Oregon | Not studied | Not studied | Decreased ADHD symptoms and functional improvement. Telehealth was superior to augmented primary care. |
| | Stewart et al, 2017 | Trauma-exposed pediatric patients | Higher completion rates in telehealth vs in-person treatment. | Not studied | Delivery of care unchanged with telehealth model. All youth no longer met criteria for PTSD at end of treatment |
| Integrated Primary Care | Hansel et al., 2017 | Patients in federally qualified health centers in Louisiana and Florida | Not studied | 85% satisfaction with services. 87% reported services received as good, very good or excellent. | Significantly reduced parental stress and problem behavior change scores. |
| | Myers et al., 2015* | See above. | See above. | See above. | See above. |
| Community-focused interventions | Allen et al., 2018 | Community fair attendees in SW Virginia | Not studied | 100% reached by phone interview rated intervention “Very helpful” or “extremely helpful” | Participants reported increased confidence and significantly decreased levels of subjective distress immediately after |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | the intervention. Distress change from preintervention to phone follow-up was not significant |
| | Gerlach et al., 2018 | Adults in rural Pennsylvania | A phone-based program penetration rate was higher in rural counties compared with urban and suburban counties. | Not Studied | Not Studied |
| Provider-Focused Interventions | LeCloux, 2018 | Primary care providers in rural West Virginia | Not studied | Provider satisfaction was positive. | Providers reported increased confidence and knowledge on suicidality and its management following training. Patient measures were not studied. |
| Mobile technology-based interventions | Not Studied | N/A | N/A | N/A | N/A |

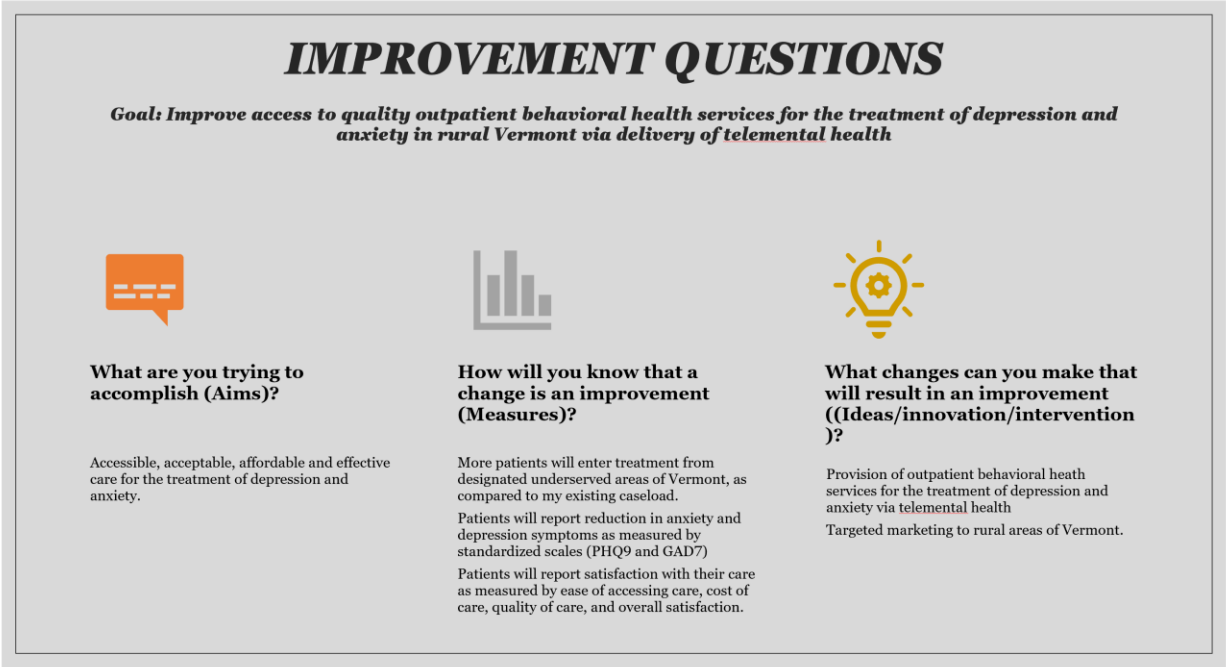
## Appendix D

*PICO*

For adult behavioral health outpatients in rural Vermont with depression and anxiety who lack access to mental health services, would the provision of psychiatric nursing services via telemental health (a) improve patient accessibility in underserved areas of Vermont, (b) be effective care, compared to baseline assessment and (c) be evaluated as satisfactory care by patients?

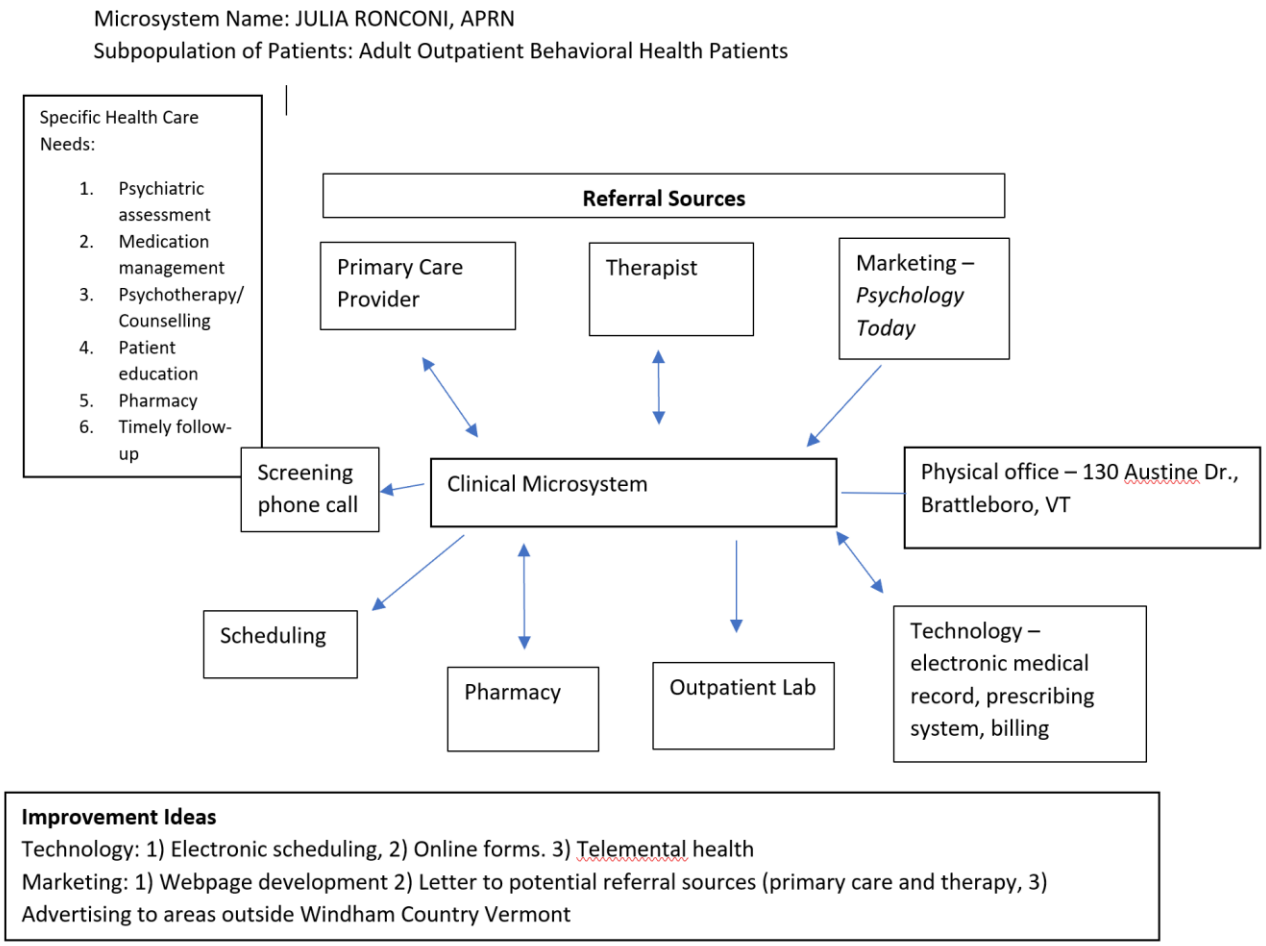
# Appendix E

*Improvement Questions*



# Appendix F

*Micro/macro system map*



# Appendix G

*Lippitt's Change Theory*

Phase 1. Diagnose the problem

Phase 2. Assess motivation and capacity for change

Phase 3. Assess change agent's motivation and resources

Phase 4. Select progressive change objective

Phase 5. Choose appropriate role of the change agent

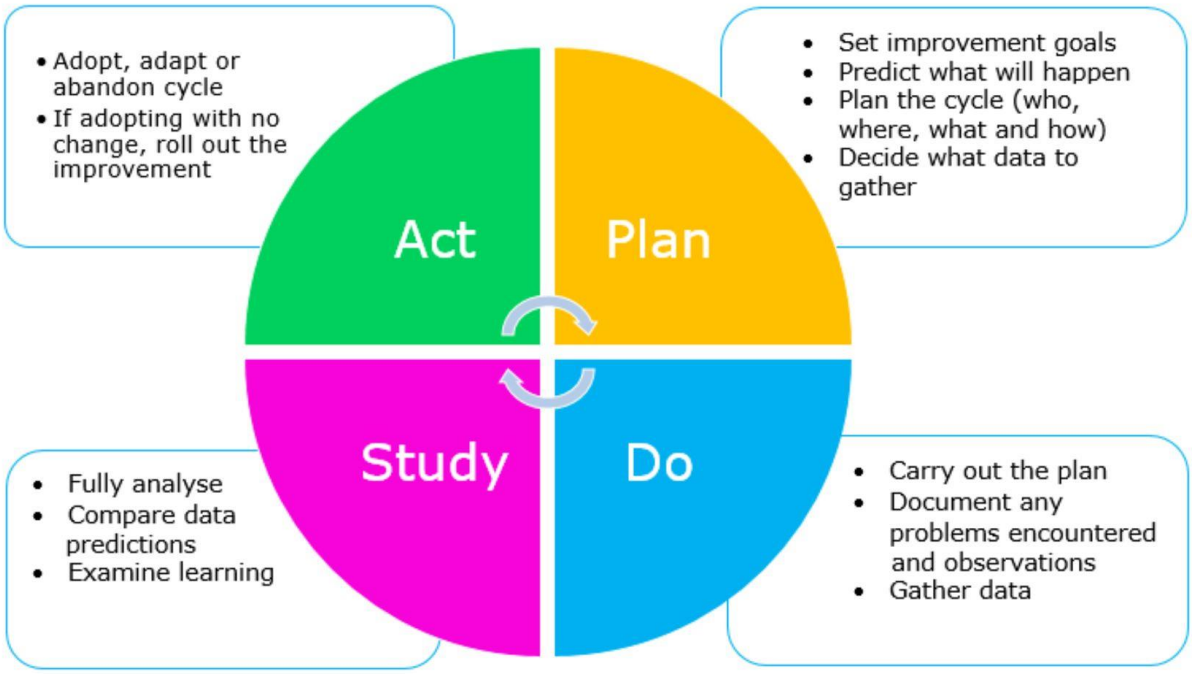
Phase 6. Maintain change

Phase 7. Terminate the helping relationship

(Lippitt et al., 1958)

## Appendix H

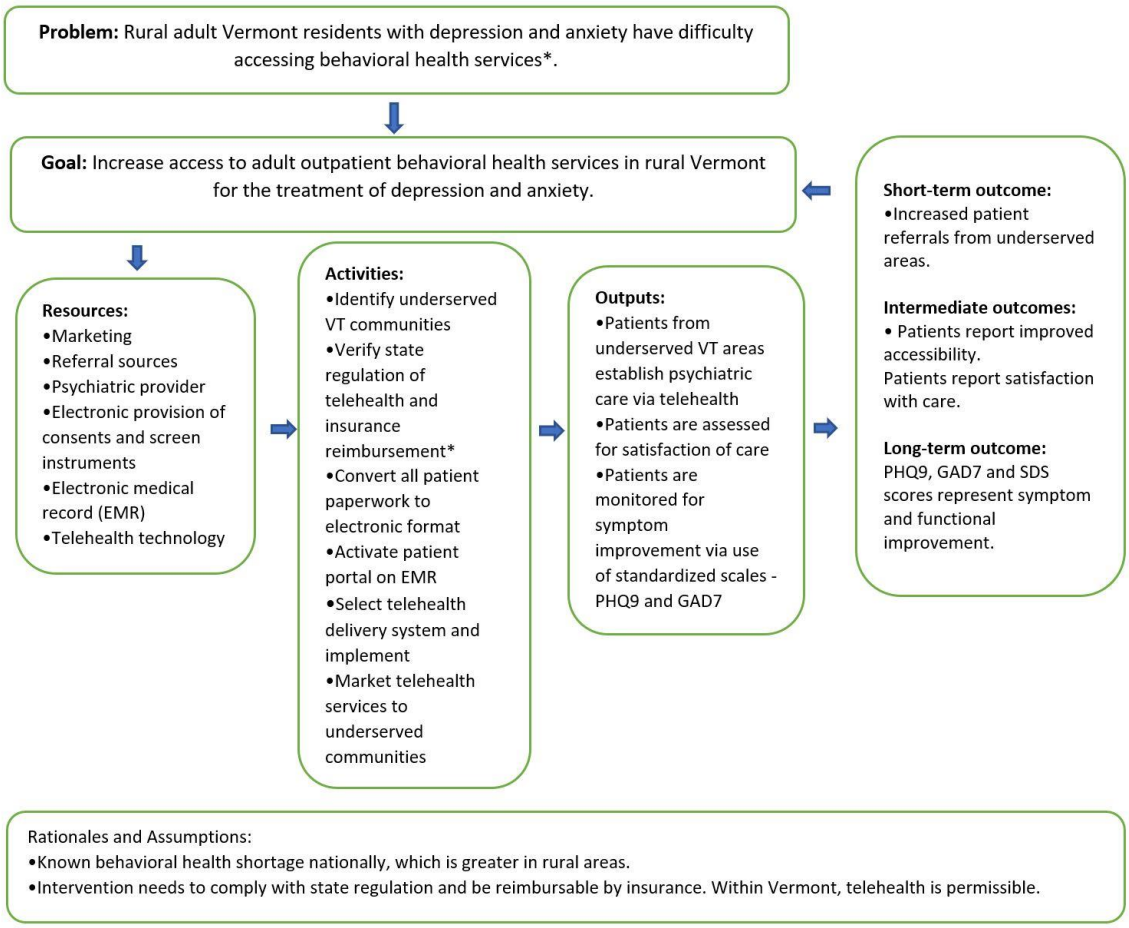
*Plan-Do-Study-Act (PDSA)*




(Institute for Healthcare Improvement, 2019)

# Appendix I

*Logic Model*



# Appendix J

*Telemental Health Patient Consent/Refusal Form*

Patient Name: _____

Date of Birth: _____

Introduction:

1. PURPOSE: The purpose of this form is to obtain your consent to participate in telemental health treatment in connection with outpatient behavioral health services offered by Julia Ronconi, APRN. The following services may be offered: Psychiatric Diagnostic Evaluation, Psychiatric Medication Management
2. NATURE OF TELEMENTAL HEALTH: During your telemental health appointment: details of your psychiatric, social and medical history will be discussed with Julia Ronconi through the use of interactive video audio and telecommunication technology. Telemental health involves the use of electronic communications to enable Julia Ronconi APRN to meet with patients at remote sites for the purpose of improving patient care. The information may be used for diagnosis, therapy, follow-up and/or education, and will include any of the following: · two-way audio and video. Electronic systems used will incorporate network and software security protocols to protect the confidentiality of patient identification and will include measures to safeguard the data and to ensure its integrity against intentional or unintentional corruption.
    a. Expected Benefits:
        i. · Improved access to medical care by enabling a patient to remain in his town or county while the physician obtains test results and consults from healthcare practitioners at distant/other sites.
        ii. More efficient medical evaluation and management. ·
        iii. Obtaining expertise of a distant specialist.
    b. Possible Risks: As with any medical procedure, there are potential risks associated with the use of telemedicine. These risks include, but may not be limited to:
        i. In rare cases, information transmitted may not be sufficient (e.g. poor resolution of images) to allow for appropriate medical decision making by the physician and consultant(s);
        ii. Delays in medical evaluation and treatment could occur due to deficiencies or failures of the equipment;
        iii. In very rare instances, security protocols could fail, causing a breach of privacy of personal medical information;
        iv. In rare cases, a lack of access to complete medical records may result in adverse drug interactions or allergic reactions or other judgment errors
3. MEDICAL INFORMATION & RECORDS: All existing law regarding your access to medical information and copies of your medical records apply to the telemental health treatment. Please note, telecommunications are recorded or stored. Additionally, dissemination of patient-identifiable images or information for the telemental health interaction to researchers or other entities shall not occur without your consent.

4. CONFIDENTIALITY: Reasonable and appropriate efforts have been made to eliminate any confidentiality risks associated with telemental health treatment, and all existing confidentiality protections under federal and Vermont state law apply to information disclosed during telemental health treatment.
5. PATIENT RESPONSIBILITIES:
    a. You must be present in Vermont at the time of your telemental health appointment.
    b. You must have a secure internet connection to ensure your privacy.
    c. You are responsible for ensuring the privacy of your surroundings at the time of your telemental health appointment.
6. RIGHTS: You may withhold or withdraw consent to the telemental health treatment at any time.
7. RISKS, CONSEQUENCES & BENEFITS: You have been advised of all the potential risks, consequences and benefits of telemental health. Your health care practitioner has discussed with you the information provided above. You have had the opportunity to ask questions about the information presented on this form and telemental health treatment. All your questions have been answered, and you understand the written information provided above.

I agree to participate in telemental health for outpatient behavioral health treatment and medication management.
Signature: _____

Date:_____ Time: _____
Witness:_____
Date: _____ Time:_____

# Appendix K

*Telemental Health Screening Checklist*

___Likely diagnosis of depression or anxiety

___Patient age is 19 or older

___Patient is a resident of Vermont

___Patient will be physically present in Vermont at time of appointment

___Has access to Firefox or Google Chrome

___Has a camera installed on their phone or computer

___ Patient is not currently taking or requesting controlled substances

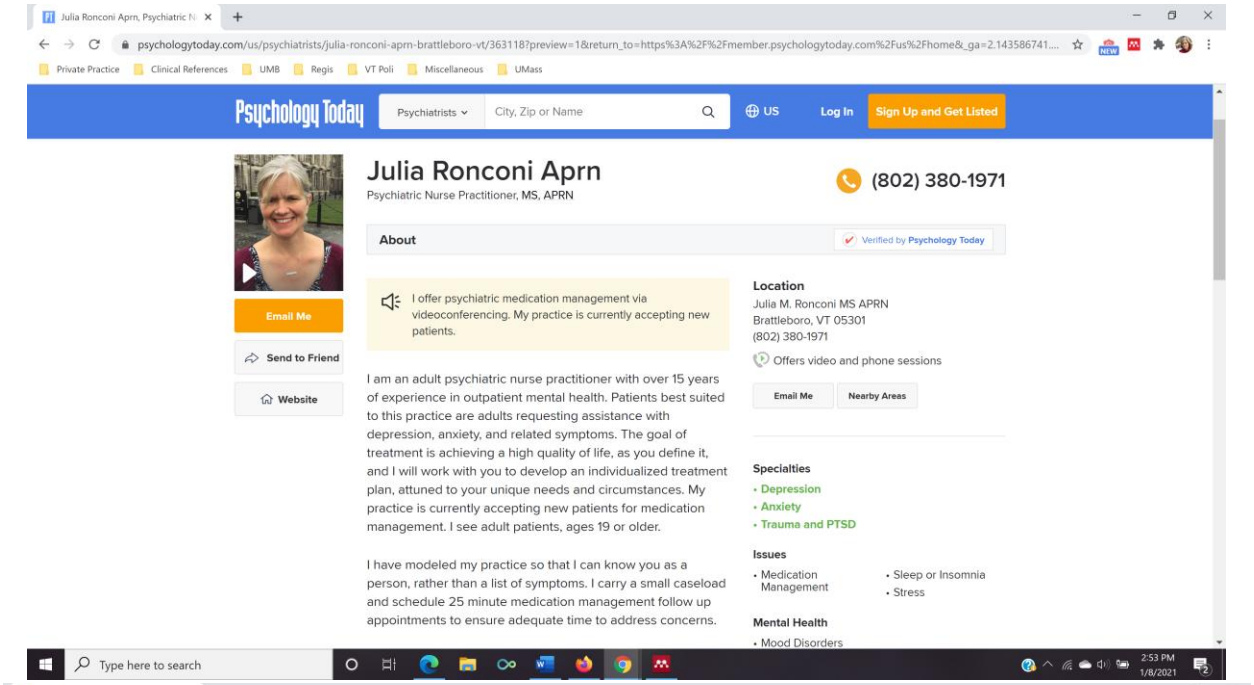
___Patient is not considered a high safety risk – not currently suicidal with intent, no history of self harm within the past 6 months, no history of impulsivity, is not in need of case management

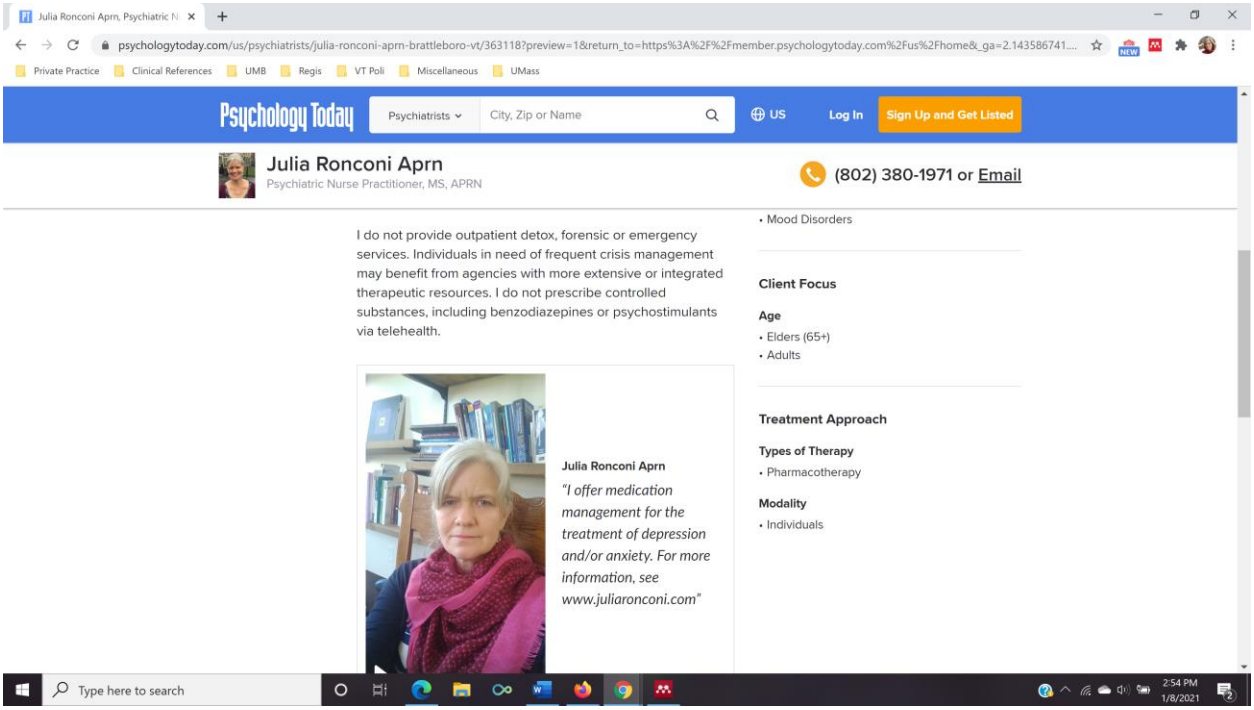
___Patient has a safety plan and understands that emergency services are not available.

___Patient is not on Medicare. If on Medicare is from confirmed shortage area.

# Appendix L

*Psychology Today Advertisement*



# Appendix M

*Referral letter*

**Julia Ronconi, APRN**
130 Austine Drive #133
Brattleboro, VT 05301
(802) 380-1971
juliaaprn@gmail.com

Dear_____

My names is Julia Ronconi. I am an adult psychiatric nurse practitioner located in Brattleboro, Vermont and am **accepting new patients** for **telemental health**. Telemental health will allow me to see Vermont residents in areas that do not have adequate access to a **psychiatric prescriber**.

I want you to be aware of my practice as _____ County is an identified area with unmet psychiatric need. I would **welcome referrals to my telemental health practice.**

Patients with the following characteristics are suitable for referral:

- Likely diagnosis of depression or anxiety
- Patient age is 19 or older
- Patient is a resident of Vermont
- Patient will be physically present in Vermont at time of appointment
- Patient is not currently taking or requesting controlled substances
- Patient is not considered a high safety risk

The technology that I use, Doxy.Me, is simple to use. Patients can be seen from their home or other setting, so long as they are physically present in Vermont. They will need:

- Access to a secure internet connection
- A private setting
- A phone, computer or device with an enabled camera and audio
- Access to Google Chrome or Firefox

For more information, I would be happy to discuss my practice, telemental health, and possible coordination of care with you further at your convenience. You may also visit my webpage for more information:

Thank you for your time and consideration. Warm regards,

Julia Ronconi, MS APRN, PMHNP-BC

# Appendix N

*Clinical Assessment Tools*

**PATIENT HEALTH QUESTIONNAIRE (PHQ-9)**

**NAME:**_____ **DATE:**_____

Over the last *2 weeks,* how often have you been bothered by any of the following problems?
*(use "✓" to indicate your answer)*

| | Not at all | Several days | More than half the days | Nearly every day |
|---|---|---|---|---|
| **1.** Little interest or pleasure in doing things | 0 | 1 | 2 | 3 |
| **2.** Feeling down, depressed, or hopeless | 0 | 1 | 2 | 3 |
| **3.** Trouble falling or staying asleep, or sleeping too much | 0 | 1 | 2 | 3 |
| **4.** Feeling tired or having little energy | 0 | 1 | 2 | 3 |
| **5.** Poor appetite or overeating | 0 | 1 | 2 | 3 |
| **6.** Feeling bad about yourself—or that you are a failure or have let yourself or your family down | 0 | 1 | 2 | 3 |
| **7.** Trouble concentrating on things, such as reading the newspaper or watching television | 0 | 1 | 2 | 3 |
| **8.** Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual | 0 | 1 | 2 | 3 |
| **9.** Thoughts that you would be better off dead, or of hurting yourself | 0 | 1 | 2 | 3 |
| | | add columns | + | + |

*(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).* TOTAL:

| | |
|---|---|
| **10.** If you checked off *any problems,* how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people? | Not difficult at all _____<br>Somewhat difficult _____<br>Very difficult _____<br>Extremely difficult _____ |

# PHQ-9 Patient Depression Questionnaire

**For initial diagnosis:**

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 ✓s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

***Consider Major Depressive Disorder***

- if there are at least 5 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

***Consider Other Depressive Disorder***

- if there are 2-4 ✓s in the shaded section (one of which corresponds to Question #1 or #2)

**Note:** Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient.
Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

**To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:**

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add up ✓s by column. For every ✓: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

**Scoring: add up all checked boxes on PHQ-9**

**For every** ✓ Not at all = 0; Several days = 1;
More than half the days = 2; Nearly every day = 3

**Interpretation of Total Score**

| Total Score | Depression Severity |
|---|---|
| 1-4 | Minimal depression |
| 5-9 | Mild depression |
| 10-14 | Moderate depression |
| 15-19 | Moderately severe depression |
| 20-27 | Severe depression |

## Generalized Anxiety Disorder 7-item (GAD-7) scale

| Over the last 2 weeks, how often have you been bothered by the following problems? | Not at all sure | Several days | Over half the days | Nearly every day |
|---|---|---|---|---|
| 1. Feeling nervous, anxious, or on edge | 0 | 1 | 2 | 3 |
| 2. Not being able to stop or control worrying | 0 | 1 | 2 | 3 |
| 3. Worrying too much about different things | 0 | 1 | 2 | 3 |
| 4. Trouble relaxing | 0 | 1 | 2 | 3 |
| 5. Being so restless that it's hard to sit still | 0 | 1 | 2 | 3 |
| 6. Becoming easily annoyed or irritable | 0 | 1 | 2 | 3 |
| 7. Feeling afraid as if something awful might happen | 0 | 1 | 2 | 3 |
| *Add the score for each column* | + | + | + | |
| Total Score *(add your column scores)* = | | | | |

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____
Somewhat difficult _____
Very difficult _____
Extremely difficult _____

Source: Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder. *Arch Inern Med.* 2006;166:1092-1097.

## Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of “not at all,” “several days,” “more than half the days,” and “nearly every day.”
GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

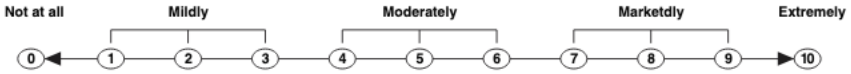
## Sheehan Disability Scale

**A brief, patient rated, measure of disability and impairment.**

Please mark ONE circle for each scale.

**WORK* / SCHOOL**

**The symptoms have disrupted your work / school work:**

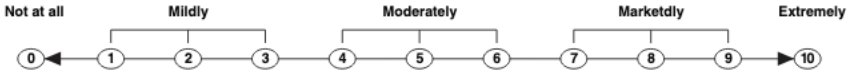



☐ I have not worked / studied at all during the past week for reasons unrealted to the disorder.

* Work includes paid, unpaid volunteer work or training

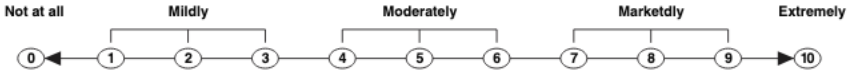
**SOCIAL LIFE**

**The symptoms have disrupted your social life / leisure activities:**




**FAMILY LIFE / HOME RESPONSIBILITIES**

**The symptoms have disrupted your family life / home responsibilities:**




**Days Lost**

On how many days in the last week did your symptoms cause you to miss school or work or leave you unable to carry out your normal daily responsibilities? _____

**Days Unproductive**

On how many days in the last week did you feel so impaired by your symptoms, that even though you went to school or work, your productivity was reduced? _____

(Sheehan et al., 1996)

# Appendix O

*Patient Satisfaction Survey*

**Introduction**

Dear____

Thank you for participating in videoconferencing for mental health services – known as "Telemental Health" at the office of Julia Ronconi, NP. Ms Ronconi began offering telemental health services in April 2020. In order to evaluate and improve the service, your feedback is needed. Please complete the attached survey about your experience and satisfaction with telemental health and Julia Ronconi's practice. All responses are anonymous.

**Please answer the following questions about your experience with telemental health and videoconferencing services.**

1. How easy was scheduling a telemental health appointment?
   Very easy
   Somewhat easy
   Neither easy nor difficult
   Somewhat difficult
   Very difficult

2. How easy was the telemental health internet site to use to talk with Ms. Ronconi?
   Very easy
   Somewhat easy
   Neither easy nor difficult
   Somewhat difficult
   Very difficult

3. How satisfied were you with the *video quality* of your telemental health appointments?
   Very satisfied
   Somewhat satisfied
   Neither satisfied nor dissatisfied
   Somewhat dissatisfied
   Dissatisfied

4. How satisfied were you with *audio quality* of your telemental health appointments?
   Very satisfied
   Somewhat satisfied
   Neither satisfied nor dissatisfied
   Somewhat dissatisfied
   Dissatisfied

5. Did telemental health appointments reduce your time away from work, compared to traditional health care delivery?

Yes, definitely
Yes somewhat
No
Not Applicable

6. Did telemental health reduce your childcare needs compared to traditional health care delivery?
Yes, definitely
Yes somewhat
No
Not Applicable

7. Consider travel expenses related to your appointment including gas, parking, and mileage on vehicle. Did telemental health reduce your travel related expenses compared to traditional health care delivery?
Yes, definitely
Yes somewhat
No
Not Applicable

8. Did telemental health provide a service that was not otherwise available in your community?
Yes, definitely
Yes somewhat
No
Unable to determine

9. Would you recommend telemental health to your family and friends?
Yes, definitely
Yes somewhat
No

**Please answer the following questions about the care that Julia Ronconi, NP has provided.**
10a. How long did you wait between requesting an appointment and being seen by Julia Ronconi? ____weeks

10b. How satisfied were you with this wait?
Very satisfied
Somewhat satisfied
Neither satisfied nor dissatisfied
Somewhat dissatisfied
Dissatisfied

11. Were you offered appointment times that were convenient for your schedule?

Yes, definitely
Yes somewhat
No

12. In your last appointment, did Julia Ronconi listen carefully to you?
Yes, definitely
Yes somewhat
No

13. In your last appointment, did Julia Ronconi address your concerns?
Yes, definitely
Yes somewhat
No

14. In your last appointment, did Julia Ronconi give you easy to understand instructions about your mental health and concerns?
Yes, definitely
Yes somewhat
No

15. In your last appointment did Julia Ronconi show respect for what you had to say?
Yes, definitely
Yes somewhat
No

16. Between appointments, is it easy to communicate with Julia Ronconi?
Yes, definitely
Yes somewhat
No
Not applicable

17.Overall, how satisfied are you with care you are receiving from Julia Ronconi?
Very satisfied
Somewhat satisfied
Neither satisfied nor dissatisfied
Somewhat dissatisfied
Dissatisfied

18. Would you recommend Julia Ronconi, APRN to your family and friends?
Yes, definitely
Yes somewhat

# Appendix P

*Measures Table*

| Expected Outcome(s) | How will you operationalize/measure the outcome | Where will you get the information | Will you have a Comparison Group? | Analysis |
|---|---|---|---|---|
| Accessible care | Referrals will increase from areas that are pre-identified as having unmet need in Vermont. | Chart – documentation of patient's place of residence | Yes – will compare to geographic region of caseload prior to implementation. | Percent patients from underserved areas. Pre-implementation and implementation measures will be compared. |
| Effective care | Patients will be assessed for depression and anxiety severity and for functional impairment using validated self-report measures. | Administration of PHQ9, GAD7 and SDS at baseline and every subsequent visit. | Baseline assessment | Percent improvement |
| Satisfactory care | Patients will be assessed for satisfaction with their care – they will be asked to evaluate effectiveness, accessibility and affordability of care | Patient survey | No | Ordinal measurement (Likert-type scale). Mean, median and mode. |

## Appendix Q

*Clinical QI checklist*

# CLINICAL QUALITY IMPROVEMENT CHECKLIST

| **Date: 02/28/2010** | **Project Leader: Julia McDougal Ronconi** |
|---|---|

**Project Title:**
Implementing Telemental Health to Improve Access to Behavioral Healthcare in Rural Vermont

**Institution where the project will be conducted:** Julia Ronconi, APRN (Private practice in Brattleboro, Vermont)

| Instructions: Answer YES or NO to each of the following statements about QI projects. | **YES** | **NO** |
|---|---|---|
| The specific aim is to improve the process or deliver of care with established/ accepted practice standards, or to implement change according to mandates of the health facilities' Quality Improvement programs. There is no intention of using the data for research purposes. | **X** | |
| The project is **NOT** designed to answer a research question or test a hypothesis and is **NOT** intended to develop or contribute to generalizable knowledge. | **X** | |
| The project does **NOT** follow a research design (e.g., hypothesis testing or group comparison [randomization, control groups, prospective comparison groups, cross-sectional, case control]). The project does **NOT** follow a protocol that over-rides clinical decision-making. | **X** | |
| The project involves implementation of established and tested practice standards (evidence-based practice) and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards. | **X** | |
| The project involves implementation or care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience. | **X** | |
| The project has been discussed with the QA/QI department where the project will be conducted and involves staff who are working at, or patients/clients/individuals who are seen at the facility where the project will be carried out. | **X** | |
| The project has **NO** funding from federal agencies or research-focused organizations, and is not receiving funding for implementation research**.** | **X** | |
| The clinical practice unit (hospital, clinic, division, or care group) agrees that this is a QI project that will be implemented to improve the process or delivery of care. | **X** | |
| The project leader/DNP student has discussed and reviewed the checklist with the project Course Faculty. The project leader/DNP student will **NOT** refer to the project as research in any written or oral presentations or publications. | **X** | |
| | | |

**ANSWER KEY:** If the answer to **ALL** of these questions is **YES**, the activity can be considered a Clinical Quality Improvement activity that does not meet the definition of human research. **UMB IRB**

**review is not required**. **Keep a dated copy of the checklist in your files.** If the answer to ANY of these questions is NO, the project must be submitted to the IRB for review.